Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of the Commission's Rules with Regard to Commercial Operations in the 1695-1710 MHz, 1755-1780 MHz, and 2155-2180 MHz Bands	)	GN Docket No. 13-185
Service Rules for Advanced Wireless Services in the 2155-2175 MHz Band	)	WT Docket No. 07-195 (Proceeding Terminated)
Service Rules for Advanced Wireless Services in the 1915-1920 MHz, 1995-2000 MHz, 2020-2025 MHz, and 2175-2180 MHz Bands	)	WT Docket No. 04-356 (Proceeding Terminated)
Applications for License and Authority to Operate in the 2155-2175 MHz Band	)	WT Docket No. 07-16 (Proceeding Terminated)
Petitions for Forbearance Under 47 U.S.C. § 160	)	WT Docket No. 07-30 (Proceeding Terminated)

REPLY COMMENTS OF CTIA – THE WIRELESS ASSOCIATION®

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REPLY COMMENTS OF CTIA – THE WIRELESS ASSOCIATION®

I. INTRODUCTION AND SUMMARY

CTIA – The Wireless Association® ("CTIA") hereby submits these reply comments in response to the Commission's *Notice of Proposed Rulemaking and Order on Reconsideration* ("NPRM") proposing rules for spectrum in the 1695-1710 MHz, 1755-1780 MHz, 2020-2025 MHz, and 2155-2180 MHz bands that would make available significantly more commercial spectrum for Advanced Wireless Services ("AWS").[1]

[1] *Amendment of the Commission's Rules with Regard to Commercial Operations in the 1695-1710 MHz, 1755-1780 MHz, and 2155-2180 MHz Bands*, Notice of Proposed Rulemaking and Order on Reconsideration, FCC 13-102 (July 23, 2013) ("NPRM"). Consistent with the terminology used in the NPRM, CTIA refers to the 1695-1710 MHz, 1755-1780 MHz, 2020-2025 MHz, and 2155-2180 MHz bands individually and collectively as "AWS-3." *See* NPRM at n. 1.

Opening comments filed in this proceeding demonstrate support for a pairing of the 1755-1780 MHz and 2155-2180 MHz bands, and the Commission should make enabling this pairing its top priority. Parties also highlighted the strengths of the 1695-1710 MHz band, and have recommended that the Commission identify a pairing for this spectrum that will allow the band to achieve its great potential.

CTIA opposes the request by the GPS Innovation Alliance that the Commission re-examine its proposed out of band emission limit out of concern for GPS receivers, and that the Commission convene a multi-stakeholder task force to resolve GPS issues in connection with this proceeding. CTIA urges the Commission not to allow speculative GPS interference issues to delay this critical spectrum auction. While CTIA has consistently stressed the importance of ensuring that adjacent band operations not cause interference to each other, the Commission should not launch a complicated inquiry into protecting services that are not directly adjacent to GPS receiver bands. Should the Commission undertake this unnecessary inquiry, it risks missing its statutorily-mandated deadline to auction the AWS-3 spectrum.

II. THE COMMISSION MUST SEIZE THIS OPPORTUNITY TO EXTEND THE AWS BAND IN THE MOST EFFICIENT AND EFFECTIVE MANNER.

CTIA has repeatedly stressed that a logical band plan is essential to a successful and productive allocation of spectrum.[2] The Commission, however, has not proposed a particular band plan for the spectrum to be reallocated in this proceeding. In its opening comments, CTIA stressed that the Commission should focus on a holistic band plan that best pairs and licenses spectrum for mobile broadband services. The opening comments in this proceeding support CTIA's findings that the Commission's focus should be on the pairing of the 1755-1780

[2] Reply Comments of CTIA – The Wireless Association®, GN Docket No. 12-268, at 14 (Mar. 12, 2013); Comments of CTIA – The Wireless Association®, GN Docket No. 13-185, at 8 (Sept. 18, 2013) ("CTIA Comments").

MHz/2155-2180 MHz bands. Comments also demonstrate the great promise of the 1695-1710 MHz band and the need to find a suitable pairing for this spectrum.

A. The Commission Should Pair the 1755-1780 MHz and 2155-2180 MHz Bands.

1. Opening Comments Demonstrate the Key Public Interest Benefits of This Pairing.

In the NPRM, the Commission observed that the 1755-1780 MHz band "holds potential as an extension to existing AWS spectrum," that it "has several characteristics that make it especially appealing for commercial wireless use," and that "it could be paired with the 2155-2180 MHz band to symmetrically extend the AWS-1 band."[3] Commenters overwhelmingly agreed with this finding. Because AWS-1 spectrum is directly adjacent to the 1755-1780 MHz and 2155-2180 MHz bands, a pairing of these two bands will continue to build upon the existing AWS-1 spectrum and allow for the seamless integration of this spectrum for mobile broadband service.

Commenters in this proceeding not only support the adoption of this pairing, but they believe it should be a key policy priority for the Commission.[4] Mobile Future correctly observed

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[3] NPRM at ¶ 33.

[4] *See, e.g.*, Comments of 4G Americas, GN Docket No. 13-185, at 1 (Sept. 18, 2013) ("4G Americas Comments") ("The Commission should pair the 1755-1780 MHz and 2155-2180 MHz bands in a single auction and not in a two-staged auction."); Comments of AT&T Inc., GN Docket No. 13-185, at 5 (Sept. 18, 2013) ("AT&T Comments") ("AT&T proposes to pair the 1755-1780 MHz block with the 2155-2180 MHz block as uplink and downlink, respectively."); Comments of Ericsson, GN Docket No. 13-185, at 20 (Sept. 18, 2013) ("Ericsson Comments"); Comments of Motorola Mobility LLC, GN Docket No. 13-185, at 4 (Sept. 18, 2013) ("Motorola Mobility Comments") ("While each of the AWS-3 bands will be important additions, and the Commission should move forward with all of them, the centerpiece of the Notice is the potential pairing of the 1755-1780 MHz and 2155-2180 MHz band segments. . . [this pairing] should be the focus of the Commission's efforts in this proceeding."); Comments of Nokia Solutions and Networks, GN Docket No. 13-185, at 5 (Sept. 18, 2013) ("Nokia Comments"); Comments of the Telecommunications Industry Association, GN Docket No. 13-185, at 10 (Sept. 18, 2013) ("TIA Comments"); Comments of T-Mobile USA, Inc., GN Docket No. 13-185, at 13-14 (Sept. 18,

that this spectrum "is ideally suited for the provision of mobile broadband services,"[5] and commenters in this proceeding agree. CTIA underscores that this pairing should be "[t]he Commission's top priority with respect to the AWS-3 spectrum," noting that this band is "uniquely situated to extend and enhance existing AWS spectrum."[6] The pairing of the 1755-1780 MHz and 2155-2180 MHz bands possesses the key characteristics of mobile broadband spectrum that have been highlighted by the wireless industry in recent spectrum proceedings. The result is that this spectrum pairing would enable a rapid, highly efficient deployment of advanced mobile service, a key public interest victory.

Several parties in this proceeding have highlighted the fact that adopting this pairing will allow for a more robust LTE deployment. As wireless services have become more advanced and bandwidth-intensive, the demand for large contiguous blocks of spectrum has increased. As TIA observed, "[h]igh data rates need wider bandwidth. The most proficient performance of LTE requires wider bandwidth channels because larger and wider channels will result in more efficient and effective networks, and will facilitate heightened deployment of [LTE]."[7] The adjacency of the 1755-1780 MHz and 2155-2180 MHz spectrum to the AWS-1 band will help

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2013) ("T-Mobile Comments") ("[T]he 1755-1780 MHz band is particularly attractive for conversion to commercial wireless use, as it is located adjacent to the AWS-1 uplink/mobile band at 1710-1755 MHz, is regionally and internationally harmonized for mobile broadband, and can be paired with the 2155-2180 MHz band to symmetrically extend the AWS-1 band."); Comments of United States Cellular Corporation, GN Docket No. 13-185, at 10-11 (Sept. 18, 2013) ("US Cellular Comments"); Comments of Verizon Wireless, GN Docket No. 13-185, at 5 (Sept. 18, 2013) ("Verizon Wireless Comments").

5 Comments of Mobile Future, GN Docket No. 13-185, at 4 (Sept. 18, 2013) ("Mobile Future Comments").

6 Comments of the Competitive Carriers Association, GN Docket No. 13-185, at 3 (Sept. 18, 2013) ("CCA Comments").

7 TIA Comments at 5.

accommodate these wide channel blocks and result in a "highly efficient, wide channel deployment of LTE."[8]

Not only will the adjacency of these bands facilitate wideband LTE deployments, but it also will create efficiencies by allowing the same equipment to be used for AWS-1 and AWS-3.[9] This, in turn, will lower deployment costs and speed LTE buildout in this spectrum.[10] These benefits apply not only to network infrastructure, but also to end user equipment. As Motorola Mobility explained, "[t]here would be significant device design benefits to pursuing this pairing. Because the 1755-1780/2155-2180 MHz pairing is symmetrical to the AWS-1 band and has the same duplex spacing, this band could be supported by existing duplexers… [t]hese efficiencies mean that 1755-1780/2155-2180 MHz capabilities likely could be built into devices with minimal additional cost and without a significant impact on battery life, heat production, or other performance characteristics."[11] While these benefits would inure to all licensees in the band,

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[8] AT&T Comments at 6. *See also, e.g.*, Mobile Future Comments at 4 ("Located below 3 GHz, the propagation characteristics of the spectrum at 1755-1780 MHz make it ideal for mobile broadband. Further, its location next to the AWS-1 band will produce significant deployment efficiencies and enable the aggregation of larger spectrum blocks."); TIA Comments at 6 ("TIA concurs with the Commission's support for allocations that are adjacent to like services. This will reduce the potential for interference to and from adjacent allocated services and promote the benefits of wider, contiguous blocks which will also reduce deployment costs, speed standard development, and encourage the deployment of 4G technologies.").

[9] *See, e.g.*, Mobile Future Comments at 8-9 ("Base stations already designed for the AWS-1 band can be modified easily to use the 2155-2180 MHz band, allowing operators to quickly deploy this spectrum for consumer use.");

[10] *See, e.g.*, Verizon Wireless Comments at 5 ("This approach will make substantial spectrum available for new entrants and allow existing licensees to leverage the investments already being made in AWS-1, thereby creating greater economies of scale and lower-cost equipment as well as reducing the risk of harmful interference. Ultimately, this pairing will lead to more rapid deployment of broadband networks to the benefit of consumers and the economy.").

[11] Motorola Mobility Comments at 5.

commenters noted that the efficiencies created by this new AWS-3 pairing would be of particular benefit to new entrants.[12]

Commenters correctly observed that this pairing also is consistent with international spectrum bands, which brings key benefits.[13] Specifically, "[t]he 1755-1780 MHz band, when paired with the 2155-2180 MHz band, aligns closely with 3GPP Band Class 10."[14] Verizon Wireless noted that "[f]orty-three countries already are using this paired spectrum for commercial purposes and 17 of the G-20 countries have allocated this spectrum for commercial use."[15] Because a "critical mass" of countries would be deploying Band Class 10 for LTE, this pairing would facilitate international roaming and device design.[16] As for device design, international roaming allows for the industry to leverage global economies of scale for

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12 *See* AT&T Comments at 6 ("This would permit new entrants and existing providers to utilize the auction and, if necessary, secondary markets to aggregate contiguous channels of 10 x 10 MHz or more, promoting competition as well as the efficient use of spectrum resources and adding much needed capacity."); Verizon Wireless Comments at 5 ("This approach will make substantial spectrum available for new entrants . . .").

13 *See, e.g.*, AT&T Comments at 7; Mobile Future Comments at 9 ("This pairing also would harmonize U.S. use with international allocations."); CCA Comments at 3 ("As the NPRM recognizes, the 1755-1780 MHz band is uniquely situated to extend and enhance existing AWS spectrum because it is adjacent to the AWS-1 uplink band and is regionally and internationally harmonized for mobile broadband.").

14 4G Americas Comments at 4.

15 Verizon Wireless Comments at 5.

16 4G Americas Comments at 4. *See also* Nokia Comments at 6 ("Once the U.S. follows the numerous international governments that have allocated these bands, the wireless industry and especially consumers will benefit from the economies of scale, ranging from shorter time to deployment, lower cost for devices and networks, and better international roaming."); Verizon Wireless Comments at 5-6 ("Harmonization will help drive greater economies of scale, promote more rapid deployment of mobile broadband networks and services, and facilitate international roaming by consumers.").

equipment development.[17] This would "diminish[] time to market and development costs for their infrastructure and devices."[18]

CTIA has previously highlighted studies projecting extremely high auction revenues from a pairing of the 1755-1780 MHz and 2155-2180 MHz bands.[19] This proceeding makes clear that this pairing is highly valued by potential bidders. As the revenues from auction of AWS-3 spectrum will help support FirstNet deployment and deficit reduction, the high value placed on this spectrum by the wireless industry cannot be ignored. For this reason, and because of the well-established public interest benefits of such a pairing, the Commission should make the pairing of the 1755-1780 MHz and 2155-2180 MHz bands its top priority.

2. Protection Requirements for Federal Incumbents in the 1755-1780 MHz Band Should Continue to be Analyzed and Refined.

In the NPRM, the Commission acknowledges the efforts of the Commerce Spectrum Management Advisory Committee ("CSMAC") working groups and seeks comments on appropriate sharing arrangements based on these groups' findings.[20] As CTIA indicated in its initial comments, it does not fully support the "sharing" studies provided thus far in the CSMAC process. Several parties agree with CTIA that additional work can and should be done to allow for greater commercial usage of the 1755-1780 MHz band.

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17 Mobile Future Comments at 4.

18 US Cellular Comments at 12. *See also* AT&T Comments at 7 ("These factors make it highly likely that a new, internationally harmonized AWS-1/AWS-3 band class would result in significant economies of scale and allow for more immediate equipment development and deployment.").

19 CTIA Comments at 11-12.

20 NPRM at ¶ 73.

While the CSMAC process has been an important one, CTIA submits that more work must be done to examine the possibility of commercial mobile broadband in the 1755-1780 MHz band. In a separate statement associated with the final reports of three of the CSMAC working groups, the majority of the CSMAC agreed that "the analysis performed in each of these working groups was both conservative and limited."[21] In other words, the CSMAC's engineering analyses do not provide an accurate picture of a potential sharing framework. Further, "because only limited technical data was shared about Federal systems with the working groups, participants were not able to fully engage in the type of informed discussion of the analysis and underlying assumptions necessary to verify the accuracy of the information."[22]

Commenters in this proceeding similarly highlighted the shortcomings of the CSMAC process. 4G Americas, while highlighting the CSMAC process as an "important exercise," observed that "the assumptions and methodologies that went into their analysis were based on conservative and limited data."[23] 4G Americas further explained that "CSMAC Members did not have access to operational data on all of the federal systems. Rather, propagation models developed years ago were used based on theoretical inputs."[24] As a result, the assumptions regarding LTE operating characteristics did not reflect technical realities.

CTIA submits that additional work should continue to better refine the analyses used in the CSMAC process, especially with respect to transitional sharing of the 1755-1780 MHz band

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21 Separate Statement Concerning Working Group Reports For the 1755-1780 MHz Band (August 29, 2013) ("CSMAC Separate Statement"), *available at* http://www.ntia.doc.gov/other-publication/2013/separate-statement-concerning-working-group-reports-1755-1850-mhz-band.

22 *Id.*

23 4G Americas Comments at 7.

24 *Id.*

and the sharing/relocation of the 1780-1850 MHz spectrum. CTIA agrees with Comsearch that "before publishing Protection Zone information, it is important to study Protection Zone analysis methodologies with a goal of improving the assumptions and refining the approach used in the CSMAC reports."[25] CTIA shares 4G Americas' and the CSMAC's optimism that the recently-announced "trusted agent" process will facilitate further information sharing and the development of a reasonable transition framework for the 1755-1780 MHz band.[26]

CTIA recognizes that time is of the essence, and that it may be necessary for these efforts to run in parallel with the Commission's reallocation and licensing of these bands. CTIA supports moving forward with licensing the AWS-3 bands with an understanding that these efforts will continue and that eventual commercial licensees can continue to work toward obtaining more use of these bands in the future.

B. The Commission Should Maximize the Utility of the 1695-1710 MHz Band by Pairing It With an Appropriate 15 MHz Band.

The NPRM also seeks comment on the 1695-1710 MHz band and how it can most effectively be deployed for mobile broadband services.[27] CTIA agrees with the Commission that

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[25] Comsearch Comments at 5. *See also* 4G Americas Comments at 7 ("Improvements should be made in the spectrum sharing analysis for 1755-1780 MHz to better reflect operating characteristics of LTE technology.").

[26] 4G Americas Comments at 8 ("In June 2013, President Obama issued a Presidential Memorandum that directs the federal users to work cooperatively with industry, including with cleared "trusted agents" from the industry. 4G Americas hopes this Memorandum will facilitate a more robust exchange of data based on the actual operating characteristics of federal systems that must remain in the band for technical reasons and the spectral-efficiency enhancements of LTE, in order to determine appropriate operating parameters to assess realistically the feasibility of LTE systems sharing the 1755-1780 MHz band. In light of the Spectrum Act requirement that NTIA prioritize relocation over sharing, it is particularly critical that sharing studies be based on the most realistic assumptions possible—ones that recognize the advanced features of LTE—so as to maximize the ability of commercial providers to meet consumer demand while protecting federal incumbents' mission capabilities."); CSMAC Separate Statement.

[27] NPRM at ¶ 31.

the 1695-1710 MHz band is extremely well-suited for mobile broadband, and notes the many commenters who have highlighted the value of pairing this band with another 15 MHz of mobile broadband spectrum. CTIA stresses that whichever 15 megahertz band is selected, that band – and not any other – should be the spectrum used to satisfy the Spectrum Act's "15 megahertz" requirement.

1. There is Widespread Record Support for Allocating the 1695-1710 MHz Band as Part of a Mobile Broadband Spectrum Pairing.

In the NPRM, the Commission did not come to any firm conclusion on how the 1695-1710 MHz band should be paired with additional spectrum. However, opening comments show that this spectrum is extremely well-suited for mobile broadband and its value would be maximized by identifying an appropriate pairing.[28] Commenters highlighted the fact that this band shares many of the same advantages as the 1755-1780 MHz and 2155-2180 MHz bands, and generally advocated for a symmetrical pairing to be identified for the 1695-1710 MHz spectrum.

Commenters agree that there are "numerous advantages this band would provide wireless carriers and the public."[29] In particular, parties observed that the contiguity of the 1695-1710 MHz band would produce many of the same benefits as an allocation of other AWS-3 bands such as 1755-1780 MHz.[30] AT&T observed that this spectrum, when paired, "would facilitate

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[28] *See, e.g.,* AT&T Comments at 5 ("AT&T supports pairing the 1695-1710 MHz block as uplink with 15 MHz of contiguous, commercial downlink spectrum, which would meet Congress' mandate that the Commission identify and allocate an additional 15 MHz for allocation to commercial mobile use."); US Cellular Comments at 13 ("USCC, like other carriers, also has previously expressed its support for reallocating the 1695-1710 MHz band …").

[29] US Cellular Comments at 13.

[30] TIA Comments at 11 ("TIA supports the use of this block for uplink spectrum as it is contiguous to the current AWS uplink spectrum.").

the aggregation of contiguous spectrum,"[31] enabling a highly efficient LTE deployment that would carry the same technical and competitive benefits as an allocation of the 1755-1780 MHz and 2155-2180 MHz bands.[32] Ericsson agreed, noting that "service providers and equipment manufacturers may be able to use or adapt existing AWS–1 band equipment for spectrum that effectively could be an extension of that band."[33] Commenters also highlighted the fact that by putting "like" services in adjacent spectrum bands, the risk of harmful interference between licensees would be reduced.[34] Finally, the allocation of the 1695-1710 MHz band would share many of the handset design advantages of the 1755-1780 MHz/2155-2180 MHz pairing.[35]

For the Commission to maximize the utility of the 1695-1710 MHz band, it should identify an appropriate pairing for it. As T-Mobile observed "the [1695-1710 MHz] band's usefulness for commercial operations will be significantly undermined if it is not paired."[36] This is because the 1695-1710 MHz band's proximity to the AWS-1 uplink band limits this band to

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31 AT&T Comments at 6

32 *See also, e.g.*, Mobile Future Comments at 13 ("Large blocks of contiguous spectrum are ideally suited for LTE service, enabling carriers to achieve higher peak throughput and greater overall capacities.").

33 Ericsson Comments at 8.

34 Ericsson Comments at 8 ("Further, placing 'like' services in adjacent spectrum bands reduces the risk of harmful interference between licensees."); Mobile Future Comments at 13 ("Furthermore, pairing spectrum adjacent to similar existing allocations ensures a consistent duplex gap between base and mobile operations throughout the country, mitigating interference and expediting deployment.").

35 Mobile Future Comments at 13 ("Spectrum contiguity offers network design synergies and handset design benefits.").

36 T-Mobile Comments at 12.

uplink, or handset, use. And "[u]nlike supplemental downlink spectrum, there are few technical or commercial reasons for additional uplink spectrum."[37]

As CTIA stated in its initial comments, and as several parties also noted, the 2095-2110 MHz band has the appropriate characteristics for mobile broadband use and provides a logical extension of existing AWS bands if paired with 1695-1710 MHz.[38] While opening comments highlight the strength of this pairing, CTIA notes that that Department of Defense is actively working with the FCC, broadcasters and other federal agencies to relocate Department of Defense services from the 1755-80 MHz band into a portion of the Broadcast Auxiliary Services at 2025-2110 MHz. [39] CTIA supports efforts to clear the 1755-1780 MHz band as the FCC's highest priority. Accordingly, the Commission should consider other options if it determines that the 1695-1710/2095-2110 approach is not feasible within the statutory time period.

Whatever approach the Commission chooses, the FCC should not support the NASA Feasibility Assessment referenced in the NPRM.[40] CTIA agrees with the numerous parties who

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37 *Id.*

38 *See, e.g.*, AT&T Comments at 5; CCA Comments at 6 ("CCA agrees with CTIA—The Wireless Association that the 2095-2110 MHz band is the prime candidate to satisfy the requirement of Section 6401 to identify an additional 15 MHz of spectrum for commercial use."); Ericsson Comments at 11 ("Ericsson's candidate band for paring with the 1695-1710 MHz band is the 2095-2110 MHz band."); T-Mobile Comments at 12 ("In order to make the best use of the 1695-1710 MHz band, it should be paired with the 2095-2110 MHz band . . ."); US Cellular Comments at 16 ("USCC agrees with CTIA that 'the 2095-2110 MHz band is the clear choice for the Commission to identify and reallocate.'").

39 *See* Letter from Teresa M. Takai, Chief Information Officer, Department of Defense, to The Honorable Lawrence E. Strickling, Assistant Secretary for Communications and Information, National Telecommunications and Information Administration (July 17, 2013).

40 NPRM at ¶ 21.

have called into question the NASA study's findings.[41] CTIA therefore agrees that "the *NASA Study*'s results should not be considered the definitive analysis of the potential for commercial use of this band."[42]

2. The Spectrum to be Paired With the 1695-1710 MHz Band Should Be Used to Satisfy the Spectrum Act's "15 Megahertz" Requirement.

The Commission in the NPRM acknowledges the Spectrum Act's requirement that it identify an additional 15 megahertz of contiguous spectrum for commercial use.[43] Because the Spectrum Act also had mandated that NTIA identify 15 megahertz of spectrum for commercial use, it is logical that the Commission pair NTIA's selection (the 1695-1710 MHz band) with the 15 megahertz it identifies.

While the 1755-1780 MHz band is ideally suited for mobile broadband, it is not an appropriate choice to fulfill the Commission's "15 megahertz" requirement, and the Commission should not designate it as such. CTIA is concerned by the Commission's implication in the NPRM that it could use the 1755-1780 MHz band to fulfill its "15 megahertz" mandate.[44]

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41 T-Mobile Comments at 22 ("First, the NASA Study selectively picks from the CSMAC efforts. For instance, it fails to use the propagation model, inter-site distance, LTE channel bandwidth, clutter factor, scheduler algorithm, Monte Carlo approach, and other such details as agreed upon by CSMAC's Working Groups. Moreover, the methodology and intermediate calculations in the NASA Study do not track similar CSMAC adopted techniques and values."). Indeed, T-Mobile noted that the NASA study is "inconsistent with the Working Group 3 Report, which is the only CSMAC report that considered a similar interference scenario of terrestrial transmitters and satellite receivers." Id. In fact, the Working Group 3 report concluded that there was minimal potential for interference from terrestrial LTE handsets to orbiting satellite receivers. *Id*. Meanwhile, Ericsson commented that the NASA study made assumptions regarding LTE system characteristics that do not reflect real-world deployments. Ericsson Comments at 16.

42 T-Mobile Comments at 23.

43 NPRM at ¶ 36.

44 NPRM at ¶ 36.

Similarly, the National Association of Broadcasters ("NAB") asserts that by auctioning the 1755-1780 MHz band, the Commission will *exceed* its Spectrum Act obligation.[45]

The record in this proceeding demonstrates the clear drawbacks of allocating 1755-1780 MHz as the Congressionally-mandated "15 megahertz." As US Cellular observed, if the Commission takes this step "fewer paired AWS-3 spectrum blocks would be available for auction" and the most likely result is that the 1695-1710 MHz band would be "orphaned" without a pairing, diminishing its utility.[46] The Commission also could not pair the 1755-1780 MHz and 1695-1710 MHz bands (nor should it), because adjacent operations require both blocks to be designated as uplink spectrum.[47] Conversely, designating a different 15 megahertz band would "permit more paired spectrum" and "make an additional 15 megahertz of spectrum available for mobile broadband services."[48] Not only would this approach clearly have a better public interest outcome, but it would also help the Commission to fulfill its National Broadband Plan directive of allocating an additional 300 megahertz of spectrum by 2015 and 500 megahertz by 2020.

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45 Comments of the National Association of Broadcasters, GN Docket No. 13-185, at 3 (Sept. 18, 2013) ("NAB Comments").

46 US Cellular Comments at 15 ("USCC again expresses its full support for designating 1755-1780 MHz as an AWS-3 band. However, if the Commission uses this band to fulfill its statutory obligation, fewer paired AWS-3 spectrum blocks would be available for auction, which would diminish the various benefits detailed above related to paired spectrum. Most likely, by identifying the 1755-1780 MHz band as the required additional 15 megahertz of spectrum, the Commission would orphan the 1695-1710 MHz band, which the NTIA identified for commercial use.").

47 *Id.* ("In contrast, not only do the 1755-1780 MHz and 1695-1710 MHz bands have disparate bandwidths, but their locations on either side of the AWS-1 uplink band weigh heavily in favor of designating both bands as uplink spectrum, which obviously would prevent pairing these bands.").

48 US Cellular Comments at 4.

The legislative history of the Spectrum Act also makes clear that Congress intended for the Commission to identify 15 megahertz *in addition to* the 1755-1780 MHz band. As CTIA previously noted, the bill passed by the House on December 13, 2011 contained the requirement that the Commission identify 15 megahertz of contiguous spectrum as well as the 1755-1780 MHz band if technically feasible.[49] This version of the Spectrum Act also stipulated that the 15 megahertz identified by NTIA and the 15 megahertz identified by the FCC were to be paired together.[50] Indeed, this is a logical interpretation of the Spectrum Act, as an alternative reading would cause the 1695-1710 MHz band to be orphaned. The Commission is bound by the law to identify and reallocate spectrum under its control, and should join NTIA in fulfilling its statutory obligation.

III. THE COMMISSION SHOULD NOT ALLOW SPECULATIVE GPS INTERFERENCE ISSUES TO DELAY THIS CRITICAL SPECTRUM AUCTION.

In its Comments, the GPS Innovation Alliance has asked the Commission to re-examine its proposed out of band emission ("OOBE") limit out of concern for interference to GPS receivers.[51] It also requests that the Commission convene a multi-stakeholder task force to resolve this component of the AWS-3 proceeding.[52] CTIA submits that these issues are best

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[49] H.R. 3630, 112th Cong. §§ 4101(a)(2)(A), (b)(2) (2011) (as passed by the House, December 13, 2011) (requiring the Commission to auction "[t]he frequencies between 1755 megahertz and 1780 megahertz" if feasible as well as "15 megahertz of contiguous spectrum to be identified by the Commission.").

[50] H.R. 3630, 112th Cong. § 4101 (b)(2)(D) (2011) (as passed by the House, December 13, 2011).

[51] Comments of the GPS Innovation Alliance, GN Docket No. 13-185, at 5 (Sept. 18, 2013) ("GPS Innovation Alliance Comments").

[52] *Id.* at 10.

addressed in other fora, and the Commission should not allow these speculative interference concerns to delay this critical spectrum auction.

The Commission need not undertake a complicated inquiry into GPS interference issues in this proceeding. There is substantial spectral distance between the GPS spectrum and the AWS-3 bands. While CTIA has consistently stressed the importance of facilitating the compatibility of adjacent spectrum uses, the Commission should not launch a complicated inquiry into protecting services that are not directly adjacent to GPS receiver bands.[53] The Commission has, in fact, already begun to examine the types of issues raised by the GPS Innovation Alliance. The agency has previously noted the important role that receiver performance can play in interference avoidance and has sought comment on receiver performance issues in another proceeding.[54] That proceeding is a more relevant forum for discussing the performance of GPS receivers than attempting to limit the out of band emissions from AWS-3 transmitters that are located many megahertz of spectrum away from GPS reception. The Commission should allow industry and government stakeholders the opportunity to continue working on these issues in that more appropriate forum.

In this proceeding, the Commission should adopt the standard OOBE limits for commercial mobile services. This is consistent with the Commission's approach for AWS-1 spectrum that is located in some cases even more closely to GPS reception than some of the

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[53] To this end, CTIA notes that, while it has repeatedly expressed its support for protecting GPS operations from interference, it also has opposed the GPS industry's requests for the imposition of regulation on non-adjacent services. *See, e.g.*, Letter from Christopher Guttman-McCabe, CTIA to Marlene H. Dortch, FCC, WT Docket Nos. 12-70 and 04-356, ET Docket No. 10-142 (Oct. 25, 2012).

[54] *Office of Engineering and Technology Invites Comments on Technological Advisory Council (TAC) White Paper and Recommendations for Improving Receiver Performance*, Public Notice, ET Docket No. 13-101 (April 22, 2013) ("Public Notice").

bands under consideration in this proceeding. These rules have allowed AWS operations to proceed – without any complaints of interference to GPS reception. The commercial wireless industry relies heavily upon GPS receivers within AWS devices, so interference concerns are well understood and handled by the commercial wireless industry without any unnecessary government regulation. Indeed, these standard out of band emission limits are more than sufficient to protect GPS receivers from operations in the AWS-3 bands. In light of these facts, CTIA urges the Commission to reject calls by the GPS Innovation Alliance to delay the auction of services that are not adjacent or even close to GPS operations.

Indeed, for the Commission to delay this proceeding by convening a multi-stakeholder group on GPS would contravene the spectrum policy goals articulated by Congress in the Spectrum Act. In drafting the Spectrum Act, Congress was not immune to the potential for harmful interference between various wireless services. In fact, Congress conditioned the H Block auction on a finding that H Block operations would not cause harmful interference to adjacent incumbent services.[55] Yet Congress imposed no such condition with respect to GPS.[56] It is clear, then, that Congress did not intend for the Commission to allow an interference investigation associated with GPS receiver performance to delay this proceeding. Allowing a multi-stakeholder group to delay the AWS-3 proceeding at this late stage would demonstrate disregard for the Commission's statutory mandate to license the AWS-3 by February 2015.

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[55] Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, 126 Stat. 156, § 6401(b)(4) (2012) ("Spectrum Act").

[56] It did, however, require an investigation into receiver performance. *Id.* § 6408. Thus, CTIA would encourage the Commission to continue its exploration of receiver performance in the separate proceeding already initiated, rather than attempting to delay the allocation and licensing of commercial wireless spectrum as mandated by Congress.

IV. CONCLUSION

Through this proceeding, the Commission is taking important steps to implement the requirements of the Spectrum Act. The AWS-3 bands, when allocated, will play a valuable role in continuing the cycle of mobile innovation and competition in the U.S. The Commission should seek to maximize the potential of this spectrum as described herein. The Commission also should be mindful that time is of the essence, and not allow this proceeding to be delayed by dwelling on matters that are best addressed in other fora.

Respectfully submitted,

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